Alg. 2 Warm Up #1-3

Warm Up sheets by the door.
Use the Wednesday space!

1. Evaluate f(-2), if $f(x) = -x^2 + 3x - 6$

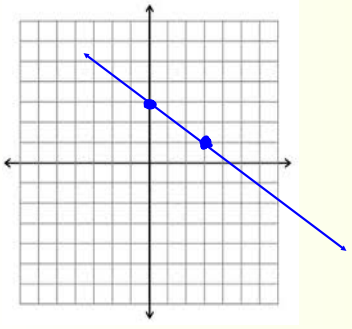
$f(-2) = -(-2)^2 + 3(-2) - 6$

$f(-2) = -4 - 12$

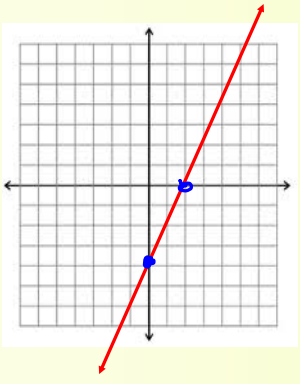
$f(-2) = -16$

2. Graph:

a) $y = -\frac{2}{3}x + 3$



b) $4x - 2y = 8$



Chapter 1 Investigations and Functions

Welcome to Algebra 2! This chapter will introduce you to the ways you will be working as well as several of the big ideas in this course. You will share your current mathematical knowledge with your study team as you work together to solve problems. Some of these ideas you will revisit later in the course and connect to new mathematical ideas. You will learn to work with a graphing calculator to help you discover qualities of functions and systems of functions.

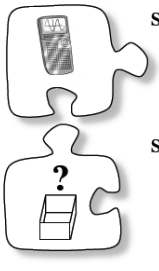
Guiding Question

Mathematically proficient students construct reasonable arguments and critique the reasoning of others.

As you work through this chapter, ask yourself:

As I investigate functions, am I analyzing the function thoroughly and clearly communicating my reasoning to others?

Chapter Outline



Section 1.1 In this section, you will get to know the members of your study team. You will work with your team to develop skills and techniques for using a graphing calculator to help you explore functions and intersections, and you will present your results to the class.

Section 1.2 Here, you will find multiple ways to represent a geometric relationship, summarize your results, and present your results to the class. You will also analyze the family of exponential functions and investigate a non-linear non-exponential function. You will develop your understanding of what it means to investigate a function.

Team Roles

Resource Manager: If your name comes first alphabetically:

- Make sure your team has all of the necessary materials, such as yarn for problem 1-1 or the resource pages for problem 1-2.
- Ask your teacher a question when the *entire* team is stuck. Before raising your hand, you might ask your team, *"Does anyone have an idea? Should I ask the teacher?"*
- Make sure your team cleans up materials by delegating tasks. You could say, *"I will put away the _____ while you _____ ."*

Facilitator: If your name comes second alphabetically:

- Start your team's discussion by reading the question aloud and then asking, *"Which shape should we start with?"* or *"How can we work together to make this shape?"*
- Make sure that all of the team members get any necessary help. You do not need to answer all of the questions yourself. A good Facilitator regularly asks, *"Do we understand what we are supposed to do?"* and *"Who can answer _____'s question?"*

Recorder/Reporter: If your name comes third alphabetically:

- Be sure all team members are able to reach the yarn and have access to the resource pages. Make sure resource pages and work that is being discussed are placed in the center of the table or group of desks in a spot where everyone can see them.
- Be prepared to share your team's strategies and results with the class. You might report, *"We tried ___ , but it didn't work, so we decided to try ___ ."*

Task Manager: If your name comes fourth alphabetically:

- Remind the team to stay on task and not to talk to students in other teams. You can suggest, *"Let's try working on a different shape,"* or *"Are we ready to try the function machines in a different order?"*
- Keep track of time. Give your team reminders, such as, *"I think we need to decide now so that we will have enough time to …"*

CP's: 1- # 1 & 2

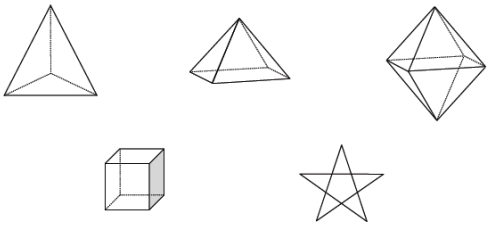
1.1.1 How can I work with my team to figure it out?

Solving Puzzles in Teams

Welcome to Algebra 2! This first chapter will challenge you to use different problem-solving strategies. You will also be introduced to different tools and resources that you can use throughout the course as you investigate new ideas, solve problems, and share mathematical ideas.

1-1. BUILDING WITH YARN

Work with your team to make each of the shapes you see below out of a single loop of yarn. You may make the shapes in any order. Before you start, review the Team Roles that are described on the next page. Use these roles to help your study team work together today. When you make one of the shapes successfully, call your teacher over to show off your accomplishment.

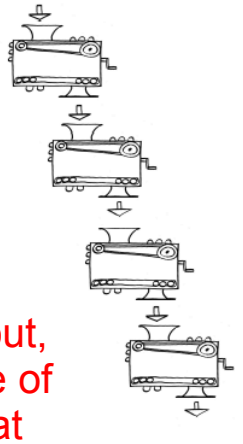


1-2. FUNCTION MACHINES

Your teacher will give you a set of four function machines. Your team's job is to get a specific output by putting those machines in a particular order so that one machine's output becomes the next machine's input. As you work, discuss what you know about the kind of output each function produces to help you arrange the machines in an appropriate order. The four functions are reprinted below.

$f(x) = \sqrt{x}$ $\quad$ $g(x) = -(x-2)^2$

$h(x) = 2^x - 7$ $\quad$ $k(x) = -\frac{x}{2} - 1$



a. In what order should you stack the machines so that when 6 is dropped into the first machine, and all four machines have had their effect, the last machine's output is 11?

b. What order will result in a final output of 131,065 when the first input is 64?

Once your team figures it out, record the result on a piece of paper with all your names at the top. Justify your reasoning! Turn it in.

For tomorrow, bring:

Spiral notebook, 100 pg. is enough, or composition book.

Pencils and erasers.
Binder with looseleaf graph paper.

Graphing calculator, TI 83 or TI 84 if possible.

Student body card.

HW: 1- #3 --->9

Means: Ch. 1, problems #3-9

On a yellow worksheet for today.

Bring your student ID tomorrow to get your book.